The Philippines to host Health Tourism Congress

Global market projected to grow by US$20 billion until 2012

Daniel Zimmermann

LEIPZIG, Germany: The Philippines has won the bid to host the next World Health Tourism Congress in Manila, the organiser Xura International has announced. The country will be the first outside Europe and the Asia Pacific region to host the event, which will be held at the Sofitel Philippine Plaza Manila on 26–28 March 2009. Previous congresses have been held in Germany, Cyprus, and Spain.

Hadi Malaeb, managing partner of the Dubai-based events company, told the Philippine Daily Inquirer that the Philippines won the bid for hosting the congress in 2009 partly because of an emerging trend in the Middle East to tour Southeast Asia, particularly the Philippines. He said that 92,000 medical tourists from the United Arab Emirates came to the Philippines last year, compared to 60,000 who went to Thailand.

Malaeb said that a 2006 Globalysis study estimated the global health and wellness tourism industry at US$40 billion, which is projected to grow to US$800 billion by 2012. “The Asian market alone consists of 1.5 million medical tourists spending a daily average of US$502 compared with the US$144 of regular inbound visitors,” he added.

The tourism industry in the Philippines has been promoting the country as a health-care destination for the past few years. During a medical tourism and wellness summit in October, Tourism Secretary Joseph II. Durano emphasised the wellness sector as part of the Department of Tourism’s recession-proof strategy to ensure tourism growth amid the economic downturn. Tourism Undersecretary Cynthia L. Carrion told reporters that the country has internationally recognised health-care facilities that compete with those in Thailand and Singapore.

Carrion also said that her department recently set up a technical working group for health and wellness tourism with representation from both the public and private sectors. The department is also developing a statistical database to track the industry’s progress, and has negotiated tax incentives from the Board of Investments.

Tooth decay in Malaysia

A new oral health campaign by the Ministry of Health in Malaysia and international toothbrush manufacturer Oral-B has revealed that nine out of ten Malaysians have problems with their teeth and gums. Half of the population also have problems with their teeth and gums. Half of the population also have problems with their teeth and gums. Half of the population also have problems with their teeth and gums. Half of the population also have problems with their teeth and gums.

Taiwan needs more implant training

According to an article in the Taiwan Times, only 140 of 15,000 dentists in Taiwan are certified to place dental implants. An official of the Department of Health told the newspaper that although dentists in the country are allowed to perform the procedure, there is no effective quality control for the profession. Patients should check whether their dentists have received certification from professional groups before getting implants.

Globally, implantology is the fastest growing market segment in dentistry with a projected market volume of US$2 billion. Taiwanese customers buy around 100,000 dental implants every year, figures of Taiwan’s Academy of Oral Implantology (AOI) say.

US military recruits foreign doctors

WASHINGTON, DC, USA: The US Department of Defense has announced the start of a recruiting campaign aimed at foreigners living in the United States on temporary visas, to fill critical shortages of medical personnel in the military. In recent years, the Army has had trouble recruiting medical professionals, not meeting its goals for applicants for medical and dental scholarships in exchange for military service.

The campaign, which has been under consideration for several years, allows the Army, Navy, Marines, and Air Force to recruit from the thousands of foreigners studying in the United States temporarily as legal aliens. Currently, there are about 29,000 non-citizens serving in the US military in return for expedited citizenship. Since 2001, nearly 45,000 foreigners have become citizens while serving in the military.
Health education change in The Philippines

LEIPZIG, Germany: The Philippines is undertaking a major renovation of health education, starting with a moratorium on the establishment of new medical and nursing schools. While the country presently produces more nurses than it needs, particularly to raise foreign remittances, many doctors, physiotherapists, occupational therapists, and other health professionals, such as dentists, consider migrating, due to poor working conditions and low salaries. “This leads to a paradoxical situation where the major producer of health providers has a dearth of the same resource” as noted in the Health Human Resource Development Master Plan (2005–2020).

Approved by the Department of Health in 2004, the Master Plan is driving the country’s policy on health education priorities for a broad range of health professions. It aims to change the distribution of physicians, dentists, and other health professionals based on demographics and the economic situation where the major producer of health providers has a dearth of the same resource. “This leads to a paradoxical situation where the major producer of health providers has a dearth of the same resource” as noted in the Health Human Resource Development Master Plan (2005–2020). Approved by the Department of Health in 2004, the Master Plan is driving the country’s policy on health education priorities for a broad range of health professions. It aims to change the distribution of physicians, dentists, and other health professionals based on demographics and the economic situation where the major producer of health providers has a dearth of the same resource. “This leads to a paradoxical situation where the major producer of health providers has a dearth of the same resource” as noted in the Health Human Resource Development Master Plan (2005–2020).

New resource on infective endocarditis for dentists in Australia

SYDNEY, Australia: Health professionals in Australia can now access a new leaflet explaining recent changes to infective endocarditis guidelines, which has been developed by the National Prescribing Service Ltd (NPS), an independent, non-profit organisation for quality use of medicines in Australia.

The new guidelines for antibiotic prophylaxis for preventing infective endocarditis were introduced by a multidisciplinary group of health professionals back in July 2008. They recommend antibiotic prophylaxis only for patients with the highest risk of adverse outcomes, and specify the heart conditions and procedures for which antibiotic prophylaxis is now recommended. The leaflet explains these recent changes to antibiotic prophylaxis guidelines, as well as dental work or surgery warranting this, in lay terms.

Endocarditis is a rare condition that causes inflammation of the heart lining, muscles, and valves. It can occur at any age, but is more common in people aged 50 years and older, and is commonly caused by germs in the mouth entering the blood. “This online resource will help dentists, doctors and other health professionals to explain the changes to patients, especially those who may be anxious about how the changes will affect them,” NPS Executive Manager of Quality Use of Medicines Programs, Karen Kaye, said.

The Australian Dental Association, Therapeutic Guide lines, and the Cardiac Society of Australia and New Zealand have endorsed the patient information format. Print versions are available for download from the NPS website.

HIV/AIDS on the rise in Pakistan

LONDON, UK/LAHORE, Pakistan: The charity organisation Save the Children UK has released a report on the recent threat of HIV/AIDS that is gradually infecting especially children in Pakistan. The report was conducted with the help of Protection and Health of Children against Abuse and Neglect (PECHIAN) in Lahore and estimates 74,000 HIV-positive cases, ranging between 24,000 and 150,000.

Demographic vulnerability, high prevalence rates of Hepatitis B and C, as well as risky sexual behaviours, and low contraceptive use compound the likelihood of contracting HIV/AIDS in Pakistan. Male child prostitution, for example, is more commonly seen than any other form of commercial sexual exploitation, according to an article by the Pakistani newspaper The News. There are 15,000–20,000 estimated child sex workers in Lahore alone, and as much as 15 to 25 per cent of children in Pakistan are affected by sexual abuse. At least 56 children of the 58 interviewed said they had one or more symptoms of sexually transmitted infections. Talking to The News, Dr Naeem Zafar, a PECIAN representative, confirmed that these vulnerable children are almost entirely without help, as everybody, including government officials, NGOs, and even the media, exploits them for their own gain.

The report further says that early marriage can make girls under 18 vulnerable to HIV. In rural areas, as much as 42 per cent of girls below the age of 19 are married, and their husbands, usually older men, are likely to be sexually experienced. In addition, poverty and a lack of education compound vulnerability to HIV/AIDS.
It’s NEW. It’s NANO. Get it NOW.
Dear reader,

As the year draws to a close I would like to extend my best wishes for 2009 to all our readers. The problem we all face next year is uncertainty about the future. The financial crisis that started on Wall Street this autumn has just begun to unfold in other parts of the world, and although there are many opinions about the short- and long-term effects, no one is really able to foresee whether it will affect us for only a few months or in the years to come.

The latest news from the market place in Asia is not very promising. China, as one of the key players in the region, has just witnessed its largest drop in exports in nearly a decade. At the same time, foreign direct investment has fallen by 56.5 per cent compared to November 2008. The Asia Development Bank in Manila recently predicted a significant slowdown in economic growth of more than 5 per cent for the entire region. Policy makers and industry players have to act swiftly if the industry is to withstand the crisis.

Prospects look rather uncertain for the dental profession. In recent years, dentistry in most markets has been driven mainly by high-cost procedures, like dental implants and cosmetics, but these sectors will probably be the first to suffer from the economic slowdown. One of the factors that could help the profession is health tourism. Ironically, fuel prices have seen a sharp decrease in the last two months, which could boost the influx of patients from overseas to destinations like Singapore, Thailand, and the Philippines.

Despite what happens in 2009, we will continue to put our best efforts into informing you of the latest developments in Asian and international dentistry. We hope that you will benefit from this knowledge, and we would like to send you our feedback on our articles and suggestions for future articles on matters that interest you. As official publishing partner of the FDA World Dental Federation, we will also be presenting at the Annual World Dental Congress in Singapore next September. We look forward to possibly meeting you there or at future international events.

We wish you a successful and happy New Year in 2009!

Daniel Zimmermann
Group Editor
Dental Tribune International

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Motivating the motivator

Mhari Coxon

This last month the clinic has been busy. I’m not complaining – what with the credit crunch in full flow, I’m happy that my patients are still coming for treatment. My colleague has also just left, and now I’m the only hygienist in my practice, and am well aware of the appointment book filling up weeks in advance. To top it all off, my personal life is busy too.

When life is busy like this, it is easy to get a little lax and decide to skip some things to keep on time and make life easier. We can get tired and de-motivated just like everyone else. After all, we need motivation as well as providing it.

This week, a client was my motivator. She had an aggressive periodontal condition and it took several sessions of root surface debridement and a lot of good home hygiene to get her stabilised. When she first attended, as is common with active periodontal cases, she was suffering from a strong oral malodour. She had not mentioned it in her initial interview, and, as she was already motivated to improve her oral health, I chose not to mention it. In this incidence, it was not necessary to use it as leverage.

This visit was for her maintenance appointment and was booked on a particularly busy afternoon and she was my last client of the day. I had just seen three demanding patients in a row, which had left me a little drained and I was conscious of running late. I carried out the usual run through of the medical history, dental health, stress levels, oral hygiene routine and was seriously considering skipping a bleeding score and not disclosing a plaque score to make my life easier.

Then my patient said that she just wanted to thank me for everything. She was so pleased that I had helped her to stabilise her disease, but was most pleased that the bad breath had gone. She and her friends had been aware of the odour and it had affected her social life quite badly. She had stopped going on dates and avoided large groups where she would need to be close to someone to be heard. She felt this was an end to the appointment, she was a receptorist in a large office and she felt self-conscious most days.

Since our completion of initial treatment, she has been speed dating, has joined a dating agency and is enjoying her social life again. She felt this was largely due to the treatment she had carried out and she just wanted to let me know what a difference I had made in her life.

I went from being a shrewd back of a hygienist rushing to get home, to bursting with energy and enthusiasm. I may even have had a wee tear in my eye. Needless to say I did do that bleeding and plaque score and she was doing well.

Realistically, most clients are busy and although they appreciate what we do, they might not have the time or the notion to boost our motivation by saying thank you.

One way to keep your care consistent for your clients is to work out what will be involved in an appointment with you. Will you always disclose? (I would say yes to that). What about pocket charting? Once a year? Anything over 4 mm measured each visit? There is no end to the information we can document, but there is an end to the appointment.

In our practice, we use a protocol system so we have a clear guide to how we care for the patients. This helps us to monitor the quality of care we give our patients.

Whenver method you choose, remember that you are human. It’s all right to lack enthusiasm sometimes, but we still need to deliver a quality level of care. That is what makes us professionals—and great ones at that.

(Mhari Coxon is a dental hygienist practising in Central London and chairman of the London British Society of Dental Hygiene and Therapy (BSDH). She can be reached at mhari.coxon@cpdpford.co.uk.)

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We tend to believe that among all the stressful professions in the world, it is dentists who have the highest suicide rate. Many people feel stress when they go to the dentist, and it is also logical to assume that the dentist must also feel the end result of all of that stress. Not to mention listening to all of the patients who say, “No of fense, but I hate the dentist!” You may be surprised to learn that there is little evidence that dentists are more prone to stress-related suicides than the general population, according to an article published in the September 2003 issue of the Journal of the American Dental Association (JADA). When a myth is repeated enough times over a long period of time, it begins to be accepted as the truth. “Since 1975, local and national professional media have repeatedly portrayed dentists as being suicide prone,” said Roger E. Alexander, D.D.S., professor, Baylor College of Dentistry, The Texas A&M University System Health Science Center, Dallas. Over the past twenty years, there has been little attempt to verify this claim. There are, however, valid statistics on this potentially life-threatening health issue. According to the Centers for Disease Control, suicide took the lives of 3,145 Americans in 1998 (11.5 per 100,000 population), and more people die from suicide than from homicide. In 1998, there were 1.7 times as many suicides as homicides, and overall, suicide is the eighth leading cause of death for all Americans, and is the third leading cause of death for young people aged 15-24. Although there is no shortage of statistic on suicide, there appears to be no evidence that dentists are at any higher risk than the general public. According to the journal's study.

While I won’t argue that dentistry can be stressful at times, I think it’s fair to say that people in any occupation can feel stress while working. It is also important to point out that it is mental disorders, like major depression and substance abuse, that are associated with more than 90 per cent of all cases of suicide. Suicide among dentists, physicians and other health care professionals is a serious issue because of the responsibility of caring for others. Fortunately, recent research has not confirmed a high suicide rate among dentists.
SPOT the FILLINGS

Makeovers can be so natural... that’s why more dentists are using Solare...
WASHINGTON, DC, USA: Thanks to poor dental hygiene, researchers are gaining a more detailed understanding of what people ate thousands of years ago in what is now Peru. Dental plaque scraped from the teeth of people who lived as much as 9,200 years ago revealed traces of cultivated crops, including squashes and beans, according to a report in the latest online edition of Proceedings of the National Academy of Sciences.

These ancient people also ate peanuts and a local fruit known as pacay, according to the report by Dolores Piperno, a staff scientist at the Smithsonian Tropical Research Institute and the National Museum of Natural History, and Tom Dillehay, Professor of Archaeology at Vanderbilt University. They studied 39 teeth from six to eight individuals. Found in northern Peru’s Nan-cho Valley, the teeth were uncovered in the remains of round, house structures in a settlement dated to 9,200 to 5,500 years ago.

“Some teeth were dirtier than others. We found starch grains on most of the teeth. About a third of the teeth contained large numbers of starch grains,” Piperno said in a statement.

The teeth study indicates that the diet of these people contained cultivated crops and was stable over time. In addition, some of the grains had been cooked, the researchers noted. They said they hope the future analysis of starch grains from teeth will lead to other findings about ancient people, perhaps showing a difference in diet between Neanderthals and early modern humans.

NEW YORK, NY, USA: The United States suffered a grim roll call of job losses this month as a number of major manufacturing and service companies said they would slash costs to cope with the deepening economic crisis. The cuts come three days after government figures showed that US employers axed 533,000 jobs from payrolls in November, the most in 34 years, and that the nation’s unemployment rate hit 6.7 percent, the highest since 1993.

Economists expect the unemployment rate to rise to as much as eight percent by late next year. Jobs data for December looks to be bleak as Dow Chemical Co, the largest US chemical maker, said it would close 20 facilities, divest several businesses, and cut 5,000 jobs.

Others taking the scythe to their workforces included diversified manufacturer 3M Co, which said it would cut a total of 2,300 jobs in the fourth quarter. The company said it had already cut 1,800 of those positions and that it would cut another 500 in the fourth quarter. The job losses will occur mainly in the United States, Western Europe and Japan.

Danaher Corp, a US conglomerate whose products include Craftsman tools and dental equipment, said it was eliminating 1,700 jobs, shuttering 13 facilities and freezing salaries.

The announcements came as the White House was reviewing a plan by Democratic lawmakers aimed at averting the collapse of automakers General Motors Corp and Chrysler LLC and saving 350,000 threatened jobs as the two companies face a cash squeeze.

President-elect Barack Obama, who will take office on 20 January, said the downturn demanded action to create new jobs, which economists say means a spending and tax plan of US$500 billion to US$700 billion.

Job losses in November were the steepest since December 1974, when 602,000 jobs were shed, and much worse than the consensus on Wall Street for a US$400,000 reduction.

(Editing by Daniel Zimmermann, DTI)
Revised manual for dentistry in Europe

BRUSSELS, Belgium: An updated guide on the training and work requirements for dentists and other dental professionals who want to practise in member states of the European Union has recently been published by the Council of European Dentists (CED). It describes the different legal and ethical regulations, dental training requirements, oral health systems, and the organisation of dental practice in 32 European countries, including Croatia, which is due to join the EU next year.

The English edition is available for download on the CED website. French and German editions may be published at a later date, Council officials said.

There has been considerable interest from dentists and government officials about the organisation of dentistry in the EU, and we believe this guide addresses all the professional issues that dentists need to take on board to make the move to practise in another country as hassle-free as possible,” commented Dr Anthony S. Kravitz, main author of the 406-page manual.

The study analysed five years of claims data from Blue Care Network, a Michigan-based Health Maintenance Organisation, and was funded by the Blue Cross Blue Shield of Michigan Foundation. The claims data pool consisted of 2,674 members with diabetes aged 18-64 with at least twelve consecutive months of medical, dental, and pharmaceutical coverage.

“Our belief is that research like this can have positive effects on the quality of care and cost of treating patients with diabetes,” Dr Ira Strumwasser, executive director and CEO of the BCBSM Foundation, said. “This study demonstrates our effort to improve the health of all Michigan residents.”

The Blue Cross Blue Shield of Michigan Foundation is dedicated to improving the health of Michigan residents by supporting health care research and innovative health programmes.
Align receives approval for Invisalign in Japan

SANTA CLARA, CA, USA: Align Technology, Inc. has announced the receipt of regulatory approval from the Japanese Ministry of Health, Labour and Welfare for marketing Invisalign, a method for treating misaligned teeth. The company said it would now begin widespread promotion in the country, where it has trained approximately 660 Invisalign orthodontists since launching the product there in October 2003.

“This regulatory approval in Japan is an important milestone and will enable us to engage in more traditional and expansive outreach activities to educate and support dental professionals with the necessary marketing activities needed to build the market for Invisalign in Japan,” Gil Laks, vice-president of the company’s international arm, stated. “In addition, we can now leverage the strength of the Invisalign brand by targeting prospective patients in Japan with consumer demand creation programmes,” Laks added.

Align began its first commercial sales of Invisalign to orthodontists in the United States in 2002, three years later, the company reported a manufacturing milestone of 15 million units per year.

SDG launches patient education videos on YouTube

SINGAPORE: Specialist Dental Group (SDG) has announced the uploading of its first patient education video on YouTube. The video is about the “Teeth-in-an-Hour” implant procedure from Swedish Nobel Biocare and will also be available in a Bahasa Indonesia-subtitled version, SDG is the first dental practice in Singapore to release patient education videos online.

Unlike conventional dental implants, which require four to six months to complete, as time is needed for the implant to heal with the jawbone, the time frame is shortened considerably with “Teeth-in-an-Hour” implants. They are manufactured by Nobel Biocare, a global market leader in innovative aesthetic dental solutions and are particularly suitable for patients with multiple missing teeth. The overall time required from treatment planning to completion is two to three appointments over a period of two to three weeks, the company says.

“We are pleased to launch our first patient education video, which we hope will help to answer patients’ questions about the procedure,” says Dr Neo Tee Khin, Consultant Prosthodontist at SDG. “These videos will educate potential patients about the benefits of implant therapy, such as the opportunity for prosthodontic rehabilitation to an expected 80,000 visitors from Germany and abroad. According to preliminary figures from the organise Koelnmesse, more companies outside of Germany are expected to attend. A new navigation system is supposed to help visitors find exactly what they are looking for. Electronic tickets can be purchased in advance from the Koelnmesse online shop.

Germany, Japan, and the United States collectively dominate the global dental supplies market, with over 80 per cent share of sales in 2008. A recent report by Global Industry Analysts, Inc, has projected the overall market volume to exceed US$21.8 billion by 2015. The demand for dental products and services in growing sectors such as implantology and prophylaxis to an expected 8,000 visitors from Germany and abroad. According to preliminary figures from the organise Koelnmesse, more companies outside of Germany are expected to attend. A new navigation system is supposed to help visitors find exactly what they are looking for. Electronic tickets can be purchased in advance from the Koelnmesse online shop.

Germany, Japan, and the United States collectively dominate the global dental supplies market, with over 80 per cent share of sales in 2008. A recent report by Global Industry Analysts, Inc, has projected the overall market volume to exceed US$21.8 billion by 2015. The demand for dental products and services is predicted to remain healthy due to a growing demand in cosmetic treatments, new products that reduce patient discomfort, increased health consciousness, and dental implants. Growth in the conventional supplies category may be reduced because of emerging procedures and technologies that require fewer supplies and materials.

Although differences exist between dental markets within Asia, rapid improvement of living standards has recently induced greater realisation about the quality of medical and dental services in countries such as India and China. Consequently, these countries are exhibiting an increasing demand for modern and sophisticated technology and equipment.
FDI Annual World Dental Congress
2 - 5 September 2009
Singapore

congress@fdiworlddental.org
www.fdiworlddental.org
Lasers have been used in different medical fields for many years, and in dentistry, in many treatments, notably eye surgery and hair removal. The technology is in the established aspect of modern dentistry and is widely used in Europe and the U.S. DTI editor Anke Schiemann had a chance to speak to Graeme Milieich, who is a fellow, diplomate, and founding board members of lasers over rotary cutting dentistry (MIVCDM), prior to the recent FDI Congress in Stockholm in Sweden.

Anke Schiemann: In a nutshell, what are the benefits of using laser in clinical dentistry today?

Graeme Milieich: Lasers have many applications in clinical dentistry. My research in the last few years focused on the clinical applications of hard tissue laser surgery. The broad range of laser applications has benefits for both the patient and the dentist. Many hard and soft tissue laser treatments are much less invasive compared with conventional approaches. I do not think there is another piece of technology in dentistry that has the ability Erbium lasers to have soft tissue, bone, and tooth structure, simply by changing laser-operating parameters.

What is the advantage of lasers over rotary instrumentation, and are there limits to what a laser can do?

Yes, there are some limitations to what can be done with a laser, like the removal of metal restorations and crowns. But if you consider the totality of the types of treatments offered by general dentists, these limitations are far less compared to conventional rotary instrumentation. For example, the broad range of laser applications has benefits for both patient and the dentist. Many hard and soft tissue laser treatments are much less invasive compared with conventional approaches. The first concept is that lasers are end cutting. We have all become very competent using laser instrumentation and have developed reflex motions as a result. The natural tendency is to apply these ‘reflexes’ when using a laser and this leads to frustration for the new user. This does not work with a laser and this leads to frustration for the new user. When using a high-speed bur, the operator needs to move the bur laterally to extend a cut. This does not work with a laser. The new user fails to move the laser, and this leads to frustration for the new user. When using a high-speed bur, the operator needs to move the bur laterally to extend a cut. This does not work with a laser. The new user fails to move the laser, and this leads to frustration for the new user.

What are the chances of treating peri-implantitis with lasers?

There are many case studies showing excellent results when treating peri-implantitis with a laser. The success rate for debridement and disinfection gives the competent clinician a tool they have only had available. The laser is to use around implants with little risk of damage to the implant. Personally, I have only treated one case of peri-implantitis so far, and it was a complete success.

The use of laser in fields like endodontics or periodontology is highly controversial. What are the main issues here?

Once again, competent laser clinicians are ahead of the research in these fields. Clinical results are being achieved that are now only beginning to be validated by research, and until the research results are available, use of lasers in these fields is going to remain controversial for many. Those that are using lasers and are observing the outcomes have little doubt as to the efficacy of their treatments. Personally, I have been involved in research using the Waterlase (Er,Cr:YSGG) in endodontics. The ability for complete debridement of the canals followed by the use of laser peeling to prevent residual organic matter and debris, has been a complete success.

The third concept is focusing and defocusing the beam, to alter ablation rates, without having to change power settings on the laser. This technique, in combination with slowing or speeding up the motion of the tip of the laser, allows the operator to finesse ablation rates to create smooth contours.

In your FDI lecture you informed us about lasers associated with laser therapy. Can you give our readers a brief introduction and explain these concepts?

The most common complaint from a new user is that it will not cut fast enough. The most significant contributor to slow ablation rates is the user, not the technology. The single biggest hurdle a dentist faces is that all patients are different. As uptake of laser technology increases, this will lead to a plethora of technology that becomes difficult for the clinician to incorporate into a practice. I envisage, in the near future, a diode-based laser that will have multiple, switchable frequencies that will allow one unit to accomplish varied tasks that would previously require different lasers. As uptake of laser technology increases, costs will decrease making advanced technology more accessible to more of the profession.

Do you expect lasers to be an essential part in every dental practice in 10 to 15 years? The multiple applications of lasers are only going to expand in the future. At the moment the lasers with the most clinical applications in one unit are the Erbium family, and many dentists have embraced this technology and are constantly expanding its clinical applications. If we look back 60 years to the initial introduction of the high-speed handpiece, it is hard to imagine the significant resistance to the technology, and it took over 10 years before it was readily accepted into general practice. Lasers have had a slower journey, making it easy to expect the advanced technology to make them more applicable in the field of dentistry and the associated research and development costs that are reflected in the price of lasers. Taking the cost of a laser out of the equation, it is very possible that lasers will be in every practice in the near future.

Thank you very much for the interview.
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Additional information is available at www.dmg-dental.com
January 2009

27th CIOSP – São Paulo International Dental Meeting
Where: São Paulo, Brazil
Date: 24–28 January 2009
Tel.: +55 11 2225 2200
E-mail: ciosp@iapd.org.br
Web site: www.ciosp.com.br

February 2009

Dental South China International Expo 2009
Where: Guangzhou, China
Date: 24–28 January 2009
Tel.: +86 20 8356 7276
E-mail: dentsouthchina.com
Web site: www.dentalsouthchina.com

144th Chicago Midwinter Meeting 2009
Where: Chicago, IL, USA
Date: 27 February – 1 March 2009
Tel.: +1 312 836 7300
E-mail: mwm@cds.org
Web site: www.cds.org

March 2009

2009 Pacific Dental Conference
Where: Vancouver, Canada
Date: 05–07 March 2009
Tel.: +1 604 736 3781
E-mail: info@pdconf.com
Web site: www.pacificdentalonline.com

SCANDEFA 2009
Where: Copenhagen, Denmark
Date: 05–07 March 2009
Tel.: +45 32 47 21 23
E-mail: lone.malling@bellacenter.dk
Web site: www.scandefa.dk

April 2009

AAAD Annual Meeting 2009
Where: Miami, FL, USA
Date: 01–04 April 2009
Tel.: +1 703 548 0066
E-mail: research@iadr.org
Web site: www.aadronline.org

May 2009

54th International Dental Show
Where: Cologne, Germany
Date: 24–28 March 2009
Tel.: +49 207 400 8989
E-mail: info@smile-on.com
Web site: www.smile-on.com

June 2009

ODONTOBRAZIL 2009
Where: São Paulo, Brazil
Date: 02–05 June 2009
Tel.: +55 11 5807 6190
E-mail: informacion@hospitalar.com.br
Web site: www.odontobrasil.net

British Dental Conference & Exhibition 2009
Where: Glasgow, UK
Date: 04–06 June 2009
Tel.: +44 20 7565 8590
E-mail: events@bda.org
Web site: www.bda.org

World Health Tourism Congress
Where: Manila, Philippines
Date: 26–28 March 2009
Tel.: +63 2 564 1334
E-mail: info@worldhealthtourism.com
Web site: www.worldhealthtourism.com

53rd International Dental Show
Where: Cologne, Germany
Date: 24–28 March 2009
Tel.: +49 207 400 8989
E-mail: info@smile-on.com
Web site: www.smile-on.com
Sonic brushing and the delivery of fluoride through Streptococcus mutans biofilms

Marcelo Aspiras, P. Stoodley & Marko de Jager

The accumulation of dental plaque biofilms plays a role in the development of caries, gingivitis, and periodontitis. Bacteria in dental plaque biofilms constitute a viable community of microorganisms with complex ecological relationships. As the biofilm grows, it forms an irregular heterogeneous sponge-like structure containing clusters of cells surrounded by channels through which liquid, such as saliva, can flow. Micro-organisms in plaque derive nutrients from saliva and the food we eat for their energy and metabolic needs. One such micro-organism is Streptococcus mutans, which produces lactic acid from the fermentation of sucrose, resulting in caries.

Acidic conditions also favour growth of beneficial bacteria such as the oral strepto-coeci (over the acidogenic cariogenic S. mutans or S. sobrinus) that are harmed by the presence of high acid levels, and whose presence in the biofilm is indicative of sound oral health. It has also been suggested that fluoride may temper the localised anaerobic and acidic micro-environments found near the surface of the biofilm and highly conducive to the acid-loving anaerobes that increase the risk of cariogenic biofilm formation. Third, fluoride can inhibit demineralisation (enamel dissolution) and enhance remineralisation (enamel deposition) in tooth enamel, positively impacting the ongoing process of remineralisation/demineralisation in tooth enamel.

If exposure to acid is short, saliva will raise the pH naturally, so that the enamel loss can be repaired through remineralisation. However, continued exposure to acid (eg, through continuous sucking on sugar-containing candy or chewing) can create a situation whereby the remineralisation rate may be insufficient to repair the loss from demineralisation, increasing the likelihood of caries development. Hence, the right balance in the rates of demineralisation and remineralisation influences the success of caries reduction.

Repeated exposure of plaque to fluoridated drinking water or dentifrice enables fluoride to bind to cells' sticky polysaccharide slime in the biofilm. Even when the fluoride source is no longer present, bound fluoride in the plaque biofilm is slowly released over time, which prolongs the anti-caries effect. Additionally, by combining this instance, the biofilm actually acts as a storage reservoir for fluoride (and other ions, such as calcium and phosphate) enabling enhanced fluoride retention and exchange between these ions and tooth enamel. However, there is still insufficient knowledge on the exact mechanisms by which biofilms actively control fluoride passage through their complex layers, other than partial diffusion of fluoride through inert areas of the biofilm, where there is virtually no fluid flow. Transport of small molecules or ions, such as fluoride, by diffusion is relatively last across minute distances, but the time to achieve a certain concentration at the base of the biofilm increases with the square of the thickness of the biofilm. Biofilm cell aggregates impede fluid flow (and hence fluoride mobility) through the cell clusters and to the tooth enamel surface itself. Although power brushing is designed to remove fluoride as much plaque as possible mechanically, it is attained with difficulty in inaccessible areas of the oral cavity. Such areas include fissures, interproximal, and even subgingival areas, as well as less accessible locations of the dentition, such as posterior teeth. Increased penetration of fluoride into the biofilm through hydrodynamic forces could enhance the period of fluoride retention and prolong its efficacy. Since topical rather than systemic fluoride delivery results in caries protection, the efficacy of topical strategies in problematic sites is as important as the concentration of salivary fluoride and fluoride exposure. Dental plaque biofilms formed in stagnant areas within the dentition can still result in colonised membrane from one chamber into the other during sonic brushing. Such interproximal sites represent areas that are difficult to access through oral hygiene alone, so enhanced fluoride delivery to these sites would represent an added clinical benefit should insufficient interproximal plaque be removed mechanically. A diagrammatic illustration of the in vitro fluoride delivery model and the analogous in vivo process is shown in Figure 2.

The in vitro study was designed to evaluate the efficacy of sonic brushing in delivering fluoride into a model S. mutans biofilm by measuring the rate in which sodium fluoride (representing fluoride ions) passed through the biofilm (Fig. 1). To accomplish this, a fluid container with two chambers separated by a permeable membrane colonised with S. mutans biofilm, representing dental plaque, was used to simulate in vivo biofilm in interproximal plaque and to measure how quickly sodium fluoride passed through the membrane.

The motion from a sonic toothbrush has been demonstrated in vitro to drive fluid dynamics over the biofilm brush into inaccessible interproximal spaces, resulting in biofilm removal in these areas. As a result, it is conceivable that fluid dynamics can also assist in the penetration of fluoride deeper into the biofilm, allowing delivery of the extra few parts per million (ppm) of fluoride that is considered beneficial for added protection against caries. This hypothesis was evaluated in an in vitro study.

The objective of the in vitro study was to evaluate the efficacy of sonic brushing in delivering fluoride into a model S. mutans biofilm by measuring the rate in which sodium fluoride (representing fluoride ions) passed through this biofilm (Fig. 1). To achieve this, a fluid container with two chambers separated by a permeable membrane colonised with S. mutans biofilm, representing dental plaque, was used to simulate in vivo biofilm in interproximal plaque and to measure how quickly sodium fluoride passed through the biofilm.
following sonic brushing in the right hand chamber (Fig. 5). The brushing chamber was filled with 1,100 ppm fluoride solution, and over a four-minute monitoring period, the concentration in the measurement chamber never fell to less than 1,590 ppm, suggesting that the concentration gradient driving the fluoride flux would remain more or less constant. Immediately prior to brushing, brush heads were positioned 1 cm from the biofilm-colonised membrane, to minimise biofilm removal during treatment, as the intent was to evaluate efficacy of fluoride delivery through the membrane rather than mechanical dislodgement of the biofilm. As fluoride diffused through the biofilm and membrane into the measurement chamber, fluoride accumulation measurements were recorded over a four-minute period, with 15 replicate measurements for the no-brushing control, and 17 replicates for the two power toothbrushes.

**Results**

Even with no brushing, fluoride concentration increased from 0.4 ppm to 0.5 ppm after four minutes, due to the difference in fluoride concentration between the two chambers (passive diffusion). With active brushing, the delivery of fluoride through the biofilm membrane increased considerably over the four-minute brushing period for both power toothbrushes. The fluoride concentration measured in the measurement chamber was 0.8 ppm after FlexCare brushing, while the concentration after Triumph brushing was 0.65 ppm (Fig. 4). Fluoride delivery rate through the colonised membrane was measured as the mass transfer rate coefficient, which was significantly greater with power brushing (P < 0.05) than with passive diffusion alone. FlexCare caused an increase of 129 per cent over no brushing compared to 79 per cent over no brushing for Triumph, while the mass transfer coefficient generated by FlexCare was significantly greater (P < 0.05), by 29 per cent than that generated by Triumph (Fig. 5).

**Discussion and relevance**

The application of an in vitro two-chamber method, to assess and compare rate of fluoride delivery through a viable microbial biofilm, is a useful use for comparative assessments of power brushing. S. mutans biofilms in esterase membranes are similar in structure to naturally grown human dental plaque biofilms. As this study demonstrated that fluid dynamics from powered brushing with both sonic and rotary brushes increased the transport of fluoride through the S. mutans biofilm compared with diffusion alone, the use of fluid dynamic activity generated by powered tooth brushing to enhance delivery of fluoride deep into the biofilm was significant. The potential for enhanced delivery becomes even more useful where plaque biofilms are located in hard-to-access areas that are typically beyond the impact of mechanical bristle activity, such that these biofilms could benefit from enhanced fluoride interventions. Clinically, a four-day trial revealed that sonic brushing increased the concentration of retained fluoride in plaque biofilm by more than 40 per cent compared to rotary brushing, manual brushing, and manual brushing and flossing. The combination of data from this clinical study and the in vitro data on enhanced fluoride delivery rates through S. mutans-colonised membrane biofilms indicates compelling evidence of the role of sonic brushing in driving fluoride into biofilms. Further research into the relationship between sonic brushing, fluid dynamic activity, and the role of oral biofilms in retention and delivery of other anti-cariogenic or anti-microbial agents should be explored. Many of the more pathogenic, anaerobic bacteria reside deeper in the plaque biofilm, where the availability of oxygen is low and they are protected from chemotherapeutic agents. However, this environment also represents a target area, where the potential is highest for improvement by increasing oxygen availability and by delivering anti-microbial agents directly to these anaerobes through sonic brushing. Should the enhanced delivery of fluoride be conclusively shown to result from the dynamics of sonic brushing-induced fluid motion, then the opportunity for delivering other broad-based, anti-cariogenic or anti-microbial agents as part of a regular oral brushing regimen will be significantly augmented.
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A methodical approach to all-ceramics

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The IPS e.max range of materials includes the nano-fluorapatite, glass-ceramic IPS e.max Ceram, which is a modern veneering ceramic suitable for use in conjunction with zirconium oxide and lithium disilicate frameworks. Along with IPS Empress, IPS e.max forms part of Ivoclar Vivadent’s portfolio of all-ceramic systems.

A 42-year-old male patient presented with the wish to have the gaps between his teeth corrected. The patient opted for an aesthetic makeover with all-ceramic bridges. Following thorough examination and preliminary periodontal treatment, the teeth were prepared and an impression was taken. Tooth shades were selected individually and documented with photographs. Digital photographs enabled the dental technician to evaluate and analyse the brightness value, saturation, and colour temperature of the tooth shade under specific conditions in the laboratory (Fig. 1).

After the models had been fabricated, they were mounted skull-related onto an articulator using a face-bow transfer system. As the abutments diverged, two bridges and two single-crown restorations were necessary: an eight-unit bridge, a six-unit bridge, and two single-unit crowns. Zirconium oxide (IPS e.max ZirCAD) was used as framework material.

The bridge frameworks were cut at the Fräszenrum Zfx-West (milling centre) by my colleague Udo Werner. The frameworks were designed in such a way that they supported the cusps, as this design contributes considerably to the longevity of the restoration. Although opinions vary widely on this issue, as a principle, I avoid additional grinding of frameworks, to prevent changes in the monoclinic phase, which may jeopardise the bonding capacity of the areas affected.

The bridges were seated on the models to check their fit. They were subsequently coated with IPS e.max Ceram ZirLiner, and fired as recommended by the manufacturer. Now, the interesting part of the work could begin. In view of the infrequency of this case, I decided to complete the bridges in several steps.

As the first step after firing the liner, I applied a dentin wash layer using a dentin shade that matched the...
After the dentin core was built up, a first cutback was performed and then the mamelon materials were applied (Fig. 4). To prevent the materials from dehydrating excessively, I first fired the first layering of dentin material (Fig. 5). For this purpose, I reduced the temperature increase to 35 °C to provide a slow heat buildup. This measure ensures a homogeneous sintering of the ceramic material even in extensive restorations (Fig. 6). To gain a better understanding of the shape and attain a precise position of the gingival margins, I cast an unsectioned model using red plaster, and then mounted the model on the articulator.

Upon completion of the first dentin finishing cycle, the incisal was layered using various insial materials and fired (Figs. 7, 8). Additional small adjustments were applied using the incisal materials, IPS e.max Ceram Opal Effect O11 and O13, and subsequently fired.

The ceramic surfaces were finished using ceramicly honed stones. Silver dust was applied to check and finish the surface (Fig. 9). A further final step, glaze firing was carried out. Subsequently, the ceramic veneering was polished with pumice using a polishing lath. Figure 10 shows the completed restoration from the occlusal aspect.

Incorporating the final bridge with a glass-ionomer cement did not create any difficulties. Figure 11 shows the restoration after having been in situ for three weeks. Figure 12 shows an occlusal view of the restoration, and Figure 13 shows a close-up of the dental reconstruction.

In conclusion, IPS e.max Ceram provides a straightforward technique for creating aesthetically exacting dental replacements without ever giving users the feeling that they have reached the limits of the system. The natural shade effect has left a positive impression on both the user and patient, and everybody involved was satisfied with the result.

It is essential that all persons involved in the process collaborate closely with each other, to make results like this possible. In particular, I would like to thank dentist Dirk Conrad and his practice team in Rethen, as well as the Fräszenrum Zf. West in Bad Neuenahr for the work performed.

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Contact Info

S.-Jan Strahinovic undertook vocational education and training from 1987 to 1990. In 2002, he completed his Master’s examination at the Meisterschule in Münster in Germany. He publishes and lectures in the fields of ceramic restorations, prosthodontics, and CAD/CAM. In addition, he is a certified PSK Dental-aesthetiker (specialist in dental aesthetics).

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KUALA LUMPUR, Malaysia: The Malaysian Dental Association has again proven its worth in bringing to its members a comprehensive selection of CPD programmes at the 65th MDA AGM and MDA/FDI Scientific Convention. The MDA/FDI Scientific Convention took place at the Hotel Istana in Kuala Lumpur from 20 to 22 June. The theme Pragmatic Judgements for Clinical Competitiveness was aptly chosen and world-renowned speakers addressed the dental fraternity on cutting-edge topics.

The keynote speakers included Prof. Marco Ferrari from Italy, Prof. Rodrigo Reis from Brazil, Assoc. Prof. Peter Cathro and Dr Christopher Ho from Australia, and Dr David Paquette from America. Local speakers included Prof. David Wilson, Datin Dr Norain Abu Talib, Dr Thomas Abraham, and Assoc. Prof. Seow Liang Lin. A variety of topics was covered, ranging from periodontics, prosthodontics, and endodontics to oral surgery and oral pathology. The organising team under the leadership of Dr Haja Bafriudeen should be applauded for the comprehensive programme.

The MDA Banquet was a memorable event, graced by Their Royal Highnesses, DYTM Raja Muda Raja Nazrin Shah and DYTM Raja Puan Besar Tuanku Zara Salim. The Honourable Minister of Health YB Dato’ Liow Tiong Lai and Senior Director of Oral Health Datin Dr Norain Abu Talib also attended.

On a lighter note, the participants were treated to fabulous food and entertainment at the Informal Nite, held at the Heritage Mansion of Jalan Yap Ah Shak, where they danced into the wee hours of the night led by energetic salsa dancers.

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Focus on APDF Member Countries—Malaysia

Asian Dental Clinic, General Hospital

Dr S. Sivanesan, President of the Malaysian Dental Association, led the Malaysian delegates to the APDC 2008 in Bangkok. The following members made up the delegation:

- Dr Xavier Jayakumar—Alternate delegate;
- Dr Suresh Nair—Editor;
- Dato’ Dr A. Ratnanesan—ICCDIE College Chairman;
- Dr S. Nagarajan; and
- Dato’ Dr B. Lakshmanan—FDI Councilor.

Having been well represented, the MDA turned out some impressive results:

1) Dato’ Dr A. Ratnanesan was returned unopposed as ICCDIE College Chairman.
2) Dr Suresh Nair was returned unopposed as Editor.
3) Dr V. Thiruchelvam was elected as one of five Vice Presidents.
4) Dr S. Nagarajan was given the distinction of being added to the List of Honour.

As a result, Malaysia’s bid to host the APDC in 2015 is almost certain. Hosting such international events has previously been a huge financial success, attracting some of the best speakers in the field to our country for the benefit of local practitioners.

General Facts
- Location: South East Asia
- Area: 520,847 km²
- Government: Federal constitutional parliamentary democracy
- Capital: Kuala Lumpur
- Population: approx. 27 million
- Currency: Ringgit Malaysia
- Major dental events held annually
  - APDF Asia Pacific Dental Conference (APDC)
  - MDA Annual General Meeting, Scientific Convention & Exhibition
  - Oral Presenation at the FDI World Dental Congress (FDI)
  - Best Oral Presentation of Prosthetics Congress, the Asian Academy of Prosthodontics Congress, the IADR Research Award, and many more.

Dr Lin graduated from the University of Malaya in 1991. She was then awarded the Petronas Scholarship to pursue her Master’s Degree in Conservative Dentistry (Eastman Dental Institute at University College London) and a Fellowship in Dental Surgery (FDI/ICDAMS) in the United Kingdom. Upon obtaining her postgraduate degree, she returned to her alma mater to serve as a lecturer. In 2000, she was named the first recipient of the Commonwealth University Split-site Scholarship in Malaysia and awarded the University of Malaya Study Award to pursue her doctoral degree at the University of Manchester.

Dr Lin is actively involved in continuing professional development programmes to share her knowledge with practitioners and researchers. She has conducted workshops and lectured locally, as well as abroad, for example in India, Taiwan, Thailand, and China. She has published in various peer-reviewed international journals and is currently the Honorary Publication Secretary for the Malaysian Dental Association. She is a council member of the International Association for Dental Research (Malaysian Section) and the Asian Academy of Prosthodontics.

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10th FDI/MDA Joint Scientific Convention & Exhibition 2009
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Fees after 31.12.2008:
- Members—RM500
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Dr Lin has research interests in aesthetic dentistry, dental materials, and prosthodontics. She is actively involved in research and has won numerous international awards, such as the Gold Medal and Best Oral Presentation at the 20th Anniversary CEREC Symposium, the Best Oral Presentation at the Asia Academy of Prosthodontics Congress, the IADR Research Award, and many more.

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